Please amend the paragraph on page 8, lines 1-8, as follows:

In one embodiment, test bed [10] 11 includes a bitmap register 50 that controls several options. Such a register 50 is shown in Fig. 8. In one embodiment, register 50 is an eight bit register having the following bit fields. Fields 52 and 54 are unused and set to zero. Field 56 is used to disable V.8bis and K56flex (a logic "0" enables V.8bis and K56flex while a logic "1" disables V.8bis and K56flex). Field 58 enables the digital V.90 client (a logic "0" disables the digital V.90 client while a logic "1" enables the digital V.90 client). Field 60 determines if the concentrator requests a leased connection from the signaling subsystem ("0" is normal operation, "1" is a request).

Please amend the paragraph on page 8, lines 22-27, as follows:

In one embodiment, data pump modulation and negotiation coded can be obtained from Vocal Technologies of Westlake Village, California. In one such embodiment, the code includes hooks that allow register 60 to be mapped by software on the appropriate fields of the V.8 or V.8bis specification as discussed above. Once the modes of operation are established, training continues as described in the V.90p specification.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on March 7, 2002, and the references cited therewith.

Claims 1-12 are pending. No claims have been amended; no claims have been cancelled; and no claims have been deleted.

§103 Rejection of the Claims

The Office Action has rejected **claims 1 - 6** under 35 USC § 103(a) as being unpatentable over Eckes et al. (U.S. Patent No. 6,243,832), hereinafter "Eckes," in view of Armistead et al. (U.S. Patent No. 6,260,071), hereinafter "Armistead."

With regard to **claim 1-3**, the combination of Eckes and Armistead must teach or suggest all the claim elements. The Office Action states "Eckes discloses a test bed having a bank of

modems, wherein the test bed includes a means for spoofing operation of a plurality of modems." As the Examiner suggests, Eckes describes using a bank of modems to test a Remote Access Server (RAS) (Col. 6 lines 20-24). In addition, Eckes states that a RAS is a combination of a modem bank and a high-end router. Armistead describes Remote Access Concentrators (RACs) as network routers with dial-in facilities (Col.1 lines 32-37). The Office Action states, "It would have been obvious to one of ordinary skill to modify the test bed of Eckes to use a RAS concentrator, as opposed to a modem bank, ... and Armistead teaches the use of RAS concentrators in large systems, and dial-up servers are representative of the systems to be tested by the instant application."

The present application teaches a test bed as a processor and a RAS concentrator; as in Eckes, the test bed is connected to a RAS concentrator in order to test the RAS concentrator. As the application notes, the invention could also be used to test a bank of modems. Applicant teaches that one of the problems in using a RAS concentrator to test one or more concentrators is that testing collections of concentrators can be difficult. Testing of such systems under load requires that one make ten thousand simultaneous connections. In the past, such a test would require a bank of ten thousand analog or digital modems. Such an approach is cumbersome, unreliable and costly.

The present application teaches "spoofing" as using a digital connection to spoof an analog modem. (*See* Page 6 line 17.) As stated in the specification, one embodiment of spoofing the communication server is to select options during the V.8 or V.8bis connection negotiations not normally selected by an analog modem. This allows the RAS concentrator to spoof the availability of V.90 or K56Flex analog-type modems.

Eckes and Armistead do not contain such a teaching. Eckes describes using a bank of modems to test a server. This approach is described in the Background of the Invention section of Applicant's specification as being unreliable and costly. Thus, "spoofing," or mimicking, a bank of modems is not suggested in Eckes. And further, claim 1 connects a test bed to the bank of modems, thus replacing the bank of modems is not taught in claim 1.

Even if Eckes and Armistead can be combined or modified to form the present invention, the fact that they can does not render the resultant combination obvious unless the prior art also

suggests the desirability of the combination. Eckes does not describe testing a bank of modems with another bank of modems, and Armistead does not describe testing a bank of modems. Thus, there is no motivation in the combination of Eckes and Armistead to test a bank of modems with a RAS concentrator, and claim 2 is not obvious in view of Eckes and Armistead.

Thus, claim1 is not obvious in view of Eckes and Armistead because the references do not teach or suggest all of the combined elements.

With regard to **Claim 4-6**, the Office Action stated "Eckes does not disclose a test bed for connecting to a communications server having a RAS concentrator to be tested. However, Eckes discloses a test bed having a modem bank for connecting to a network access server containing a bank of modems. ... Further, Armistead teaches the use of remote access concentrators (RACs) in large network access servers that provide dial-up services and each RAC having its own transmission facilities connecting it to the communications medium. ... It would have been obvious to one of ordinary skill to modify the test bed of Eckes to use a RAC as opposed to a modem bank in the test bed,... for testing a RAC in a communications server, as opposed to testing a bank of modems in a communications server, because Armistead teaches that RAC typically have their own transmission facilities for connecting to a communications medium."

However, the references Eckes and Armistead in combination must teach or suggest all the claim elements. Claim 4 teaches using a second RAS concentrator to test the first RAS concentrator where the second RAS concentrator spoofs the operation of a plurality of modem connections. Depending on the system to be tested, this may involve spoofing thousands of simultaneous connections. In contrast, the combination of Eckes and Armistead does not describe using the second RAS concentrator to simultaneously establish a plurality of connections between the two RAS concentrators for the purpose of testing one of the RAS concentrators by spoofing a plurality of analog modems.

Nothing in the combination of Eckes and Armistead teaches or suggests the desirability of replacing a bank of modems with a second RAS concentrator and using the second RAS connector for the purpose of spoofing a bank of analog modems to test the first RAS concentrator. Thus, claim 4 is not obvious in view of Eckes and Armistead.

The Office Action rejected **Claim 7 and 8** under 35 USC § 103(a) as being unpatentable over Chau et al. (U.S. Patent No. 6,147,987), hereinafter "Chau," in view of Armistead , and further in view of Eckes

With regard to claim 7 and 8, the Office Action states "Chau discloses a network access server comprising a processor and a telephone network interface connected to the processor, wherein the processor operates under program control to provide spoofing support." However, Chau defines "spoofing" as "wherein an idle connection temporarily relinquishes its telephone line." (*See* Col. 2 lines 5-7). And further as, "if it has been determined that a connection has been idle for a significant period of time and the system tears down the link." (*See* Col.13 line 60 through Col. 14 line 14.)

In contrast, the present application teaches "spoofing" as using a digital connection to spoof an analog modem. (*See* Page 6 line 17.) As in the discussion of claims 1-6 above, one embodiment of spoofing the communication server is to select options during the V.8 or V.8bis connection negotiations not normally selected by an analog modem. This allows the RAS concentrator to spoof the availability of V.90 or K56Flex analog-type modems.

Also, the processor described in Chau is a packet processor that "connects to the network and relays data between the line server and network under control of the routing engine." (*See* Col. 6 lines 41- 43.) However, the processor in claims 7 operates under program control to spoof individual analog modem connections. There is no such teaching in Chau. Also, as discussed under claim 1 above, Eckes describes using a bank of modems to test a server. Thus, "spoofing," or mimicking, a bank of modems is not suggested in either Eckes, Armistead, or Chau.

Thus, the references Chau, Eckes, and Armistead do not teach or suggest all the claim elements of claim 7 or 8, and claims 7 and 8 are not obvious in view of the combined references.

The Office Action rejected **Claim 9** under 35 USC § 103(a) as being unpatentable over Chau in view of Armistead and Eckes , in further view of Eng However, claim 9 is dependent to claim 8 and must be viewed in light of claim 8. The Office Action has stated that Chau combined with Armistead combined with Eckes discloses everything in claim 8. Applicant respectfully disagrees (*See* the discussion of claim 8 above). The Office Action also states that claim 9 is

obvious in view of the combined references with the additional reference of Eng that discusses a RAS that plugs into a motherboard.

However, in addition to not disclosing all of claim 8, the motivation to combine Chau with Eckes and replace the modems in Eckes with the RAC in Armistead and place the RAS on a motherboard as in Eng must come from the prior art references and cannot come from hindsight. Also, the fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Thus, claim 9 is not obvious in view of the cited references.

The Office Action rejected **Claims 10-12** under 35 USC § 103(a) as being unpatentable over Eckes in view of Armistead and further in view of Chau

In the Office Action, it is stated that, "It would have been obvious to one of ordinary skill to modify Eckes in combination with Armistead to include within the RAS concentrator a processor and program control to provide spoofing support for individual modem connections, because Chau discloses spoofing support within a RAS and Eckes provides spoofing for a modem bank to a test a communications server.

As discussed above concerning claim 7 and 8, Chau does not define "spoofing" in the same way as the present application (*See* Col. 2 lines 5-7 of Chau, and Page 6 line 17 of the present application) As stated in the specification, one embodiment of spoofing the communication server is to select options during the V.8 or V.8bis connection negotiations not normally selected by an analog modem. This allows the RAS concentrator to spoof the availability of V.90 or K56Flex analog-type modems.

Also, Chau does not a describe a processor operating under program control to spoof individual analog modem connections. Thus, the references Chau, Eckes, and Armistead do not teach or suggest all the claim elements of claims 10-12, and claims 10-12 are not obvious in view of the combined references.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612-373-6909) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

ANDREW WARNER

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Date May 6, 2002 By Thomas F. Brennan
Thomas F. Brennan
Reg. No. 35,075

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 6th day of May, 2002.

Candis B. Buending
Name

Candis Buending
Signature

CLEAN VERSION OF AMENDED SPECIFICATION PARAGRAPHS

Paragraph on page 7, lines 3-10:

In one embodiment, the information categories used to spoof modem connections across communications medium 12 are modulation mode 40, V.90 availability 42 and PSTN access 44. Modulation mode 40 is set to indicate V.90 availability (b5 = 1). V.90 Availability 42 is configured such that V.90 analogue modem availability is indicated (b5 = 1) but V.90 digital modem availability is not indicated (b6 = 0). PSTN Access 44 is configured to show that test bed 11 is using an analogue network connection indicated (b7 = 0). Once the appropriate CM or JM signal is transmitted, training proceeds in an ordinary fashion.

Paragraph on page 8, lines 1-8:

In one embodiment, test bed 11 includes a bitmap register 50 that controls several options. Such a register 50 is shown in Fig. 8. In one embodiment, register 50 is an eight bit register having the following bit fields. Fields 52 and 54 are unused and set to zero. Field 56 is used to disable V.8bis and K56flex (a logic "0" enables V.8bis and K56flex while a logic "1" disables V.8bis and K56flex). Field 58 enables the digital V.90 client (a logic "0" disables the digital V.90 client while a logic "1" enables the digital V.90 client). Field 60 determines if the concentrator requests a leased connection from the signaling subsystem ("0" is normal operation, "1" is a request).

Paragraph on page 8, lines 22-27:

In one embodiment, data pump modulation and negotiation coded can be obtained from Vocal Technologies of West lake Village, California. In one such embodiment, the code includes hooks that allow register 60 to be mapped by software on the appropriate fields of the V.8 or V.8bis specification as discussed above. Once the modes of operation are established, training continues as described in the V.90p specification.

Table 2/V.8 – Information categories

Start	b0	b1	b2	b3	b4	b5	b6	b7	Stop	Category octets (b4 = 0) with category given by tag b0-b3
0	1	0	0	0	0	x	x	x	1	Call function
0	1	0	1	0	0	x	x	x	1	Modulation modes
0	0	1	0	1	0	x	x	x	1	Protocols
0	1	0	1	1	0	x	x	x	1	PSTN access
0	1	1	1	1	0	x	x	x	1	Non-standard facilities
0	0	1	1	0	0	x	x	x	1	For use by the Telecommunications Industries Association (USA)
0	1	1	1	0	0	x	x	x	1	V.90 availability

40

44

42

Fig. 4: Prior Art

Identification field – {SPar(1)} coding

8	7	6	5	4	3	2	1	SPar(1)s
x	x	x	x	x	x	x	1	Network type (Note)
x	x	x	x	x	x	1	x	Reserved for allocation by the ITU-T
x	x	x	x	x	1	x	x	Reserved for allocation by the ITU-T
x	x	x	x	1	x	x	x	Reserved for allocation by the ITU-T
x	x	x	1	x	x	x	x	Reserved for allocation by the ITU-T
x	x	1	x	x	x	x	x	Reserved for allocation by the ITU-T
x	1	x	x	x	x	x	x	Reserved for allocation by the ITU-T
x	0	0	0	0	0	0	0	No parameters set in this octet

NOTE – The absence of a binary ONE in this bit position indicates that the DCE is connected to an analogue PSTN connection.

Fig. 5 (Prior Art)

Identification field – Network type {NPar(2)} coding

8	7	6	5	4	3	2	1	Network Type NPar(2)s
x	x	x	x	x	x	x	1	Cellular access
x	x	x	x	x	x	1	x	ISDN access
x	x	x	x	x	1	x	x	DigitalPS TN access (Note)
x	x	x	x	1	x	x	x	Reserved for allocation by the ITU-T
x	x	x	1	x	x	x	x	Reserved for allocation by the ITU-T
x	x	1	x	x	x	x	x	Non-standard network
x	x	0	0	0	0	0	0	No parameters set in this octet

NOTE – Thisb it is set to binary ONE to indicate digital PSTN access, other than ISDN, where the DCE delivers digitally encoded analogue content to the network.

Fig. 6. (Prior Art)

– Standard information field – Data {NPar(2)} coding – Octet 3

8	7	6	5	4	3	2	1	Data NPar(2)s
x	x	x	x	x	x	x	1	Rec. V.32
x	x	x	x	x	x	1	x	Rec. V.22 *bis*
x	x	x	x	x	1	x	x	Rec. V.22
x	x	x	x	1	x	x	x	Rec. V.21
x	x	x	1	x	x	x	x	V.90 analogue modem
x	x	1	x	x	x	x	x	V.90 digital modem (Note)
x	x	0	0	0	0	0	0	No parameters in this octet

NOTE – A digital V.90 modem cannoto perate on an analogue PSTN connection. See Note to Table 5.2.

Fig. 7 (Prior Art)